irritation which arises in one hemisphere goes within the medulla oblongata to the other half of the spinal cord and in this to the lumbar cord. If, in the above experiment, with left spinal hemisection, irritation of the cortical centre of the right extremity is made, then the left extremity is quiet, whilst the right is extended. Here the excitation goes first from the right hemisphere to the left half of the spinal cord, and from this above the level of the spinal section back to the right half of the cord. The transit from one to another half of the cord, through the gray substance, can take place at every level of the spinal cord. It has just been stated that after hemisection of the spinal cord the extremity on that side was quiet when the hemisphere of the opposite side was irritated, but it must be added that by strong irritation muscular contraction would ensue.—*Pflüger's Archiv*, Band xxxvi., Heft 5 and 6.

THE MINIMAL INTERVAL AT WHICH THE SUMMATION OF TWO MAXIMAL STIMULI OCCURS IN STRIATED MUSCLE.—Dr. Yeo and Mr. Herroun have made a series of experiments upon this point with frogs.

It was discovered by Helmholtz that the shortest interval at which he could appreciate the effect of a second stimulus, when two succeeding induction-shocks were allowed to enter a nerve, was $\frac{1}{600}$ of a second. Their results were as follows :

1. When two induced currents, each capable of causing a maximal contraction, enter a muscle in opposed directions, the stimulating effects are not summated at smaller intervals than $\frac{1}{1500}$ of a second.

2. When two induced currents enter a muscle in the same direction, or two ascending currents enter a nerve, there can hardly be any limit fixed as a minimal time interval at which their effect is summated.

3. Degrees of fatigue which cannot be recognized by the effect on the general irritability of the muscle, or the form of the curve, are sufficient to prevent stimuli giving rise to summation at small intervals.

4. The most important time in determining the summation of stimuli applied to the nerve is the relative strength of the first and second stimulation. The first stimulus must not exceed the second in strength if summation at very small intervals is desired.

5. In stimulating the nerves with our coils two ascending currents are more effective in causing summation than two descending currents.

6. In indirect stimulation summation is soonest arrived at (with interval increasing from zero) when the part of the nerve near the muscle is stimulated first in point of time.

7. Beyond the short interval during which current interference comes into play, we do not get a subtraction from the height of the contraction given by a single maximal stimulus with two maximal stimuli with any direction of currents.

8. Increase of interval is never accompanied by a fall in the summated contraction, provided the second stimulus falls before or within the period of "ascending energy."

9. Having regard to the causes of variation given above, we do not find a sudden increase in summative effect to be constant at any one period of increment of interval.—*Journal of Physiology*, vol. vi., No. 3.

THE NATURE OF NERVE-FORCE.—Dr. Bowditch has made some experiments upon this point. The principal data of which account must be taken in every proposed theory of nerve-force, are:

1. The transmission of a stimulus along the nerve with undiminished intensity.

2. The exhaustion of the nerve by continued stimulation.

Upon an etherized cat the sciatic was divided near the sacrum and placed upon a pair of shielded electrodes of an induction machine.

The animal received then a dose of curare sufficient to prevent muscular contractions, and the irritation of the nerve was steadily maintained while the animal was kept alive. In the course of about two hours the curare was so far eliminated that the stimulation of the nerve which had been previously without effect began to produce muscular twitches which, as the elimination of the drug progressed, became more frequent and more violent. These experiments support the theory that nerve-force is transmitted by some sort of a molecular vibration after the manner of light or electricity. An argument of a negative character in favor of this view may be found in the absence of satisfactory evidence of chemical change or of heat production associated with the activity of the nerve, showing that no great amount of potential energy is set free in the process.

Physiologists have long been in the habit of comparing nerves to telegraph wires, since they seem to be indifferent conductors transmitting impulses equally well in both directions. It would appear from these experiments that the absence of fatigue in consequence of activity is another very interesting point of resemblance.—*Journal of Physiology*, vol. vi., No. 3.

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c.—GENERAL PATHOLOGY OF THE NERVOUS SYSTEM.

ANALYSIS OF THE NERVE-PHENOMENA IN ANÆSTHETIC LEPROSY.—W. Allen Sturge, M.D., in a paper (*Brain*, April, 1885) based upon the careful study of a case of non-tuberculated anæsthetic leprosy, reaches the following conclusions in answer to certain queries which he propounds—namely, (1) Is the lesion *central*,—*i. e.*, in the brain or spinal cord; or is it *peripheral*,—*i. e.*, in the nerves? (2) If peripheral, is it (*a*) in the trunks of the nerves? (*b*) in the finer nerve branches? or (*c*) in the peripheral